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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,911	07/26/2001	Yifan Gong	TI-30869	7358
23494	7590	10/06/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			CHAWAN, VIJAY B	
			ART UNIT	PAPER NUMBER
			2654	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/915,911	GONG, YIFAN	
	<b>Examiner</b>	<b>Art Unit</b>	
	Vijay B. Chawan	2654	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 2 is objected to because of the following informalities: does the applicant mean "means or" or "means for"? To further prosecution of the application examiner assumes it to be "means for" instead of "means or". Also claim 3, should it depend upon claim 2, instead of claim 1, since it invokes means plus function language?  
  
In claim 5, the word "using" is used twice? Similar exist throughout the claim language and should be cleaned up.  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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It is not from the claim language, which claims does the claim depend upon, i.e., from claim 3 or claim 4.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-3, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Neumeyer et al., (6,226,611).

As per claim 1, Neumeyer et al., teach a method of speech recognition comprising: decoding multiple HMM sets using one set of sentence network and recognizing speech using said decoded multiple HMM sets (Col.4, lines 48-55, Col.9, lines 25-35, Col.10, lines 30-45).

As per claim 2, Neumeyer et al., teach a speech recognizer comprising means for decoding HMM sets using one set of sentence network and a recognizer recognizing speech using said decoded multiple HMM sets (as speech input - Col.4, lines 48-55; to recognize speech - Col.9, lines 25-35; to be used in a grammar network especially for sentence recognition Col.10, lines 30-45).

As per claim 3, Neumeyer et al., teach the method of claim 1, wherein the means for decoding includes means for building recognition paths defined on expanded symbols and accessing said network using base symbols through a conversion function (as traversing path along each accepted state of HMM – Col.10, lines 4-52).

As per claim 5, Neumeyer et al., teach a method of speech recognition method comprising, providing a set of generic grammars, providing symbols representing a network expanded sets and building recognition paths defined by the symbols and accessing the network using base symbols through proper conversion function that gives the true symbol of any expanded symbol (as speech recognition using a base grammar – Col.10, lines 53-61; wherein in the case of known words, the grammar builds upon the grammar network itself Col.11, lines 32-38).

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Naylor et al., (5,806,034).

As per claim 6, Naylor et al., teach a method of speech recognition (Col.3, lines 30-40) comprising the steps of: providing a generic network containing base symbols (Fig.2, items 32,34,36); a single set of HMMs for male and female (as training HMMs for male and female – Col.6, lines 15-25); building recognition paths defined on virtual symbols corresponding to base symbols (as building paths using base HMMs – Fig.4); accessing said generic network using said base symbols through conversion function that gives base symbols for virtual symbols (as building upon the base with new model information at each node – Figs. 5-7); to therefore decode multiple HMM sets using a single sentence grammar and using said HMM sets to recognize incoming speech (performing the recognition – Col.8, lines 45-52; using grammar sentence models - Col.7, lines 49-55).

As per claim 7, Naylor et al., teach the method of claim 6, wherein said building step includes for each frame path propagation expansion based on the

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grammar network and update observation probability (as expansion from grammar – Col.5, line 60 -Col.6, line 4, Col.7, lines 45-57).

As per claim 8, Naylor et al., teach the method of claim 7, wherein said path propagation includes getting offset HMMs, offset symbols and the base symbol for a given expanded symbol and obtaining the HMM of the previous frame and expanding and storing a sequence set of HMM states both for within model path and cross model path and cross model path and determining the path with the best transition probability (as using labels from stored data for duration, variance, frequency of occurrence - Col.5, lines 55-65; wherein this data is merged with the original HMM data to formulate the new probabilities – Col.7, lines 40-55, Fig.6).

As per claim 9, Naylor et al., teach the method of claim 8, wherein said update-observation-probability includes getting the base symbol of a expanded symbol and validating state by state the base symbol by comparing to speech in the present frame for the base symbol associated with the virtual symbol (as expanding the old symbol and testing the mode – Fig.6, Col.9, lines 25-55).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Narayanan et al., (6,076,057) teaches unsupervised HMM adaptation based on speech-silence discrimination.

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Neumeyer et al., (6,055,498) teach a method and apparatus for automatic text-independent grading of pronunciation for language instruction.

Kondo et al., (5,819,221) teach speech recognition using clustered between word and/or phrase coarticulation.

Wheatley et al., (5,333,275) teaches system and method for time aligning speech.

Kao (6,285,981) teaches speed up speech recognition search using macro evaluator.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vijay B. Chawan whose telephone number is (703) 305-3836. The examiner can normally be reached on Monday Through Thursday 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Vijay B. Chawan  
Primary Examiner  
Art Unit 2654

*9/30/04*

vbc

**VIJAY CHAWAN  
PRIMARY EXAMINER**